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Response dated January 30, 2006
Response to Office Action Dated November 30, 2005

REMARKS

By this amendment, claims 1, 6, 12, and 18 have been amended. Accordingly, claims 1-23 are currently pending in the application, of which claims 1, 6, 12, and 18 are independent claims.

Applicants respectfully submit that the above amendment does not add new matter to the application and are fully supported by the specification. In view of the above amendments and the following Remarks, Applicants respectfully request reconsideration and timely withdrawal of the pending objections and rejections for the reasons discussed below.

REJECTIONS OF CLAIMS 1, 2, 5-7, AND 10 UNDER 35 U.S.C. 103(a)

On page 2 of the Office Action, the Examiner rejected claims 1, 2, 5-7, and 10 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Okamoto et al., U.S. Patent No. 5,825,445 (hereinafter “Okamoto”) in view of Kishimoto et al., U.S. Patent No. 6,396,559 (hereinafter “Kishimoto”). Applicants traverse the rejection with respect to these claims.

Claim 1 of the present application, as amended, recites: “A liquid crystal display, comprising ... spacers positioned between the upper substrate and the lower substrate and within a pixel region, the spacers in the pixel region determining a gap between the upper and lower substrates; ... and the color of the spacers is black.” (Emphasis added.)

Independent claim 1 of the present application patentably distinguishes over the combination of Okamoto and Kishimoto for at least the foregoing reasons. The Examiner admits that Okamoto fails to teach black spacers positioned between the upper and the lower substrate and asserts that Kishimoto teaches “a black spacer formed in the pixel region . . . to reduce light leakage and provide spacing between the substrates.” However, the black spacers disclosed in Kishimoto are not the same as the spacers recited in claim 1 of the

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present application. Specifically, in Kishimoto, the black spacers positioned inside the pixel region do not define/determine a gap between the upper and lower substrates, as it is the spacers in a region contained by the black matrix that define a space between the upper and lower substrates as seen in FIG. 9 of Kishimoto upon which the Examiner relies.

In particular, the Examiner relies on Figure 9 of Kishimoto, which discloses black spacers (530) in the pixel region and in a region contained by the black matrix (102), wherein the black spacers in the region contained by the black matrix (102) define the gap between the upper and lower substrates 123 and 110, respectively. In particular, the gap therebetween is dependent on a diameter of the black spacer (530) and a height of a polymer wall (106) disposed above a respective black matrix (102). Kishimoto does not teach or suggest, either alone or in combination with the other references relied by the Examiner, that the black spacers in the pixel region determine the size of the gap between the upper and lower substrates. Further, Kishimoto does not teach or suggest, either alone or in combination with the other references relied by the Examiner, that the black spacers are contained only in the pixel region, (e.g., not in an area defined by a region contained by the black matrix). In fact, Kishimoto teaches away from this limitation, as Kishimoto discloses that it is the black spacers in the region corresponding to the black matrix that determines the gap between the upper and lower substrates.

To the contrary, the spacers of the present application, as recited in independent claim 1, are positioned "within a pixel region; the spacers in the pixel region determining a gap between the upper and lower substrates".

Therefore, for at least the reasons discussed above, independent claim 1 of the present application patentably distinguishes over the combination of Okamoto and Kishimoto. Accordingly, it is respectfully requested that the rejection of independent claim 1 be withdrawn.

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Claims 2 and 5 depend from independent claim 1 and are patentable for at least the reasons discussed above. Accordingly, it is respectfully requested that the rejections of claims 2 and 5 be withdrawn.

Similarly, independent claim 6 of the present application, as amended, recites: "A liquid crystal display, comprising ... spacers positioned between the upper substrate and the lower substrate and within a pixel region; the spacers in the pixel region determining a gap between the upper and lower substrates ... the spacers are black." (Emphasis added.)

Independent claim 6 of the present application patentably distinguishes over the combination of Okamoto and Kishimoto for at least the foregoing reasons. The Examiner admits that Okamoto fails to teach black spacers positioned between the upper and the lower substrate and asserts that Kishimoto teaches "a black spacer formed in the pixel region . . . to reduce light leakage and provide spacing between the substrates." However, the black spacers disclosed in Kishimoto are not the same as the spacers recited in claim 6 of the present application. Specifically, in Kishimoto, the black spacers positioned inside the pixel region do not define/determine a gap between the upper and lower substrates, as it is the spacers in a region contained by the black matrix that define a space between the upper and lower substrates as seen in FIG. 9 of Kishimoto upon which the Examiner relies.

To the contrary, as discussed above, the spacers of the present application, as recited in independent claim 6, are positioned "within a pixel region; the spacers in the pixel region determining a gap between the upper and lower substrates".

Therefore, for at least the reasons discussed above, independent claim 6 of the present application patentably distinguishes over the combination of Okamoto and Kishimoto. Accordingly, it is respectfully requested that the rejection of independent claim 6 be withdrawn.

Claims 7 and 10 depend from independent claim 6 and are patentable for at least the

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reasons discussed above. Accordingly, it is respectfully requested that the rejections of claims 7 and 10 be withdrawn.

REJECTIONS OF CLAIMS 12, 13 AND 16 UNDER 35 U.S.C. 103(a)

On page 3 of the Office Action, the Examiner rejected claims 12, 13, and 16 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Okamoto in view of Kishimoto and further in view of Watanabe, U.S. Patent No. 5,617,228. Applicants traverse the rejection with respect to these claims.

Independent claim 12 of the present application, as amended, recites: "A liquid crystal display, comprising ... spacers positioned between the upper substrate and the lower substrate and within a pixel region, the spacers in the pixel region determining a gap between the upper and lower substrates ..." (Emphasis added.)

Independent claim 12 of the present application patentably distinguishes over the combination of Okamoto, Kishimoto, and Watanabe for at least the foregoing reasons. The Examiner admits that Okamoto fails to teach spacers positioned between the upper and the lower substrate and asserts that Kishimoto teaches "black spacers which would have less than 3% transmittance formed in the pixel region . . . to reduce light leakage and provide spacing between the substrates." However, the black spacers disclosed in Kishimoto are not the same as the spacers recited in claim 12 of the present application. Specifically, in Kishimoto, the black spacers positioned inside the pixel region do not define/determine a gap between the upper and lower substrates, as it is the spacers in a region contained by the black matrix that define a space between the upper and lower substrates as seen in FIG. 9 of Kishimoto upon which the Examiner relies. To the contrary, as discussed above, the spacers of the present application, as recited in independent claim 12, are positioned "within a pixel region; the

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spacers in the pixel region determining a gap between the upper and lower substrates".

Watanabe does not cure the deficiency of Okamoto and Kishimoto.

Therefore, for at least the reasons discussed above, independent claim 12 of the present application patentably distinguishes over the combination of Okamoto, Kishimoto, and Watanabe. Accordingly, it is respectfully requested that the rejection of independent claim 12 be withdrawn.

Claims 13 and 16 depend from independent claim 12 and are patentable for at least the reasons discussed above. Accordingly, it is respectfully requested that the rejections of claims 13 and 16 be withdrawn.

REJECTIONS OF CLAIMS 18, 19 AND 22 UNDER 35 U.S.C. 103(a)

On page 4 of the Office Action, the Examiner rejected claims 18, 19 and 22 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Okamoto in view of Watanabe. Applicants traverse the rejection with respect to these claims.

Independent claim 18 of the present application, as amended, recites: "A liquid crystal display, comprising ... spacers positioned between the upper substrate and the lower substrate and within a pixel region, the spacers in the pixel region determining a gap between the upper and lower substrates; ..." (Emphasis added.)

Independent claim 18 of the present application patentably distinguishes over the combination of Okamoto and Watanabe for at least the foregoing reasons. The Examiner admits that Okamoto fails to teach spacers positioned between the upper and the lower substrate and a number of spacers less than 90 in one square millimeter, but asserts that Wantanbe teaches "ball type spacers of spacer density of 60 spacers/mm." However, the spacers disclosed in Wantanbe are not the same as the spacers recited in claim 18 of the present application. Specifically, Wantanbe merely discloses that the spacers have a spacers

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had a density of about 60 spacers/mm² at column 13, lines 65-67. There is no teaching or suggestion that the spacers in the pixel region define a gap between the upper and lower substrates. To the contrary, the spacers of the present application, as recited in independent claim 18, are positioned "within a pixel region; the spacers in the pixel region determining a gap between the upper and lower substrate."

Therefore, for at least the reasons discussed above, independent claim 18 of the present application patentably distinguishes over the combination of Okamoto and Watanabe. Accordingly, it is respectfully requested that the rejection of independent claim 18 be withdrawn.

Claims 19 and 22 depend from independent claim 18 and are patentable for at least the reasons discussed above. Accordingly, it is respectfully requested that the rejections of claims 19 and 22 be withdrawn.

REJECTIONS OF CLAIMS 3, 4, 8 AND 9 UNDER 35 U.S.C. 103(a)

On page 5 of the Office Action, the Examiner rejected claims 3, 4, 8 and 9 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Okamoto in view of Kishimoto and further in view of Miller et al., U.S. Patent No. 5,617,228 (hereinafter, "Miller"). Applicants traverse the rejection with respect to these claims.

Claims 3 and 4 depend from independent claim 1 and are patentable for at least the reasons discussed above that independent claim 1 patentably distinguishes over the references relied upon by the Examiner. Miller does not cure the deficiencies. Accordingly, it is respectfully requested that the rejections of claim 3 and 4 be withdrawn.

Claims 8 and 9 depend from independent claim 6 and are patentable for at least the reasons discussed above that independent claim 6 patentably distinguishes over the references relied upon by the Examiner. Accordingly, it is respectfully requested that the rejections of

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claims 8 and 9 be withdrawn.

REJECTIONS OF CLAIMS 14 AND 15 UNDER 35 U.S.C. 103(a)

On page 6 of the Office Action, the Examiner rejected claims 14 and 15 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Okamoto in view of Kishimoto and further in view of Miller. Applicants traverse the rejection with respect to these claims.

Claims 14 and 15 depend from independent claim 12 and are patentable for at least the reasons discussed above that independent claim 12 patentably distinguishes over the references relied upon by the Examiner. Miller does not cure the deficiencies. Accordingly, it is respectfully requested that the rejections of claims 14 and 15 be withdrawn.

REJECTIONS OF CLAIMS 20 AND 21 UNDER 35 U.S.C. 103(a)

On page 6 of the Office Action, the Examiner rejected claims 20 and 21 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Okamoto in view of Kishimoto and further in view of Watanabe. Applicants traverse the rejection with respect to these claims.

Claims 20 and 21 depend from independent claim 18 and are patentable for at least the reasons discussed above that independent claim 18 patentably distinguishes over the references relied upon by the Examiner. Watanabe does not cure this deficiency. Accordingly, it is respectfully requested that the rejections of claims 20 and 21 be withdrawn.

REJECTION OF CLAIM 11 UNDER 35 U.S.C. 103(a)

On page 7 of the Office Action, the Examiner rejected claim 11 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Okamoto in view of Kishimoto and further in view of Bos, U.S. Patent No. 5,410422. Applicants traverse the rejection with respect to these claims.

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Claim 11 depends from independent claim 6 and is patentable for at least the reasons discussed above that independent claim 6 patentably distinguishes over the references relied upon by the Examiner. Bos does not the deficiency. Accordingly, it is respectfully requested that the rejections of claim 11 be withdrawn.

REJECTION OF CLAIM 17 UNDER 35 U.S.C. 103(a)

On page 7 of the Office Action, the Examiner rejected claim 17 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Okamoto, Kishimoto, Watanabe, and Bos. Applicants traverse the rejection with respect to these claims.

Claim 17 depends from independent claim 12 and is patentable for at least the reasons discussed above that independent claim 12 patentably distinguishes over the references relied upon by the Examiner. Accordingly, it is respectfully requested that the rejections of claim 17 be withdrawn.

REJECTION OF CLAIM 23 UNDER 35 U.S.C. 103(a)

On page 8 of the Office Action, the Examiner rejected claim 23 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Okamoto and Watanabe in view of Bos. Applicants traverse the rejection with respect to these claims.

Claim 23 depends from independent claim 18 and is patentable for at least the reasons discussed above that independent claim 18 patentably distinguishes over the references relied upon by the Examiner. Accordingly, it is respectfully requested that the rejections of claim 23 be withdrawn.

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CONCLUSION

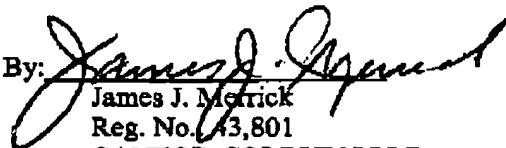
Applicants believe that a full and complete response has been made to the pending Final Office Action and respectfully submits that all of the stated objections and grounds for rejection have been overcome or rendered moot. Accordingly, Applicants respectfully submit that all pending claims are allowable and that the application is in condition for allowance.

Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact the Applicants' undersigned representative at the number below to expedite prosecution.

Prompt and favorable consideration of this Reply is respectfully requested.
It is not believed that any extensions of time are required. However, if extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned for under 37 C.F.R. §1.136(a). Applicants believe that no fees for net addition of claims are required at this time. Any fees required for extensions of time and any fees for the net addition of claims are hereby authorized to be charged to our Deposit Account No. 60-1130.

Respectfully submitted,

CANTOR COLBURN LLP

By: 
James J. Merrick
Reg. No. 43,801
CANTOR COLBURN LLP
55 Griffin Road South
Bloomfield, CT 06002
Telephone (860) 286-2929
Facsimile (860) 286-0115
PTO Customer No. 23413

Date: January 30, 2006